Amendment to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for quantitatively determining ~~the~~ a width of a soft zone area of a partially hardened metallic workpiece, which has at least one hardened and one unhardened area, by means of at least one multifrequency eddy current sensor, wherein:

~~wherein~~ a single workpiece is individually moved relative to the multifrequency eddy current sensor in such a manner that a spatially ~~de~~limited eddy current field generated by the multifrequency eddy current interacts with the workpiece contactlessly, generates eddy currents therein which, in turn, generate a measuring signal in the multifrequency eddy current sensor, in which the spatially ~~de~~limited eddy current field has a greatest extension oriented in longitudinal direction to the surface of the workpiece which extension is greater than the maximum extension of the soft zone area in longitudinal direction of the surface of the workpiece,

a number n of workpieces for calibrating purposes is measured, with the measuring signals of the n workpieces being utilized to plot a calibration curve using a predetermined standard size of the width of the soft zone, ~~i.e. the~~ with a desired size of an extension oriented in longitudinal direction of the soft zone area, and an absolute soft zone width is assigned to ~~the~~ measuring signals based on the calibration and obtained from each individual workpiece.

2. (Currently Amended) The method according to claim 1, wherein: ~~wherein~~ the workpieces are designed cylindrical and are moved relative to the eddy current sensor along their cylindrical axis.

3. (Currently Amended) The method according to claim 1 ~~or 2~~, wherein: ~~wherein~~ the workpieces are planet wheel bolts which have a cylindrical geometry and two soft areas lying on the front ends thereof separated by a hardened middle area, with the middle area having a greater axial extension than the soft zone areas, which each usually have an axial extension, ~~i.e.~~ with a soft zone width, of 1.5 mm to 2.5 mm.

4. (Currently Amended) The method according to ~~one of the claims 1 to 3~~, claim 1 wherein:

~~wherein~~ the multifrequency eddy current sensor is operated in such a manner that during measuring of a workpiece, which moves continuously relative to the multifrequency sensor with a constant velocity, a multiplicity of measuring signals is generated and plotted as an amplitude locus curve;
and

from at least one part of the amplitude locus curve a measuring constellation is selected in which the workpiece has a defined position to the multifrequency eddy current sensor, in which position a measuring signal is recorded which is used to determine the width of the soft zone.

5. (Currently Amended) The method according to claim 4, wherein: ~~wherein~~ the defined position is selected in such a manner that the eddy current field of the multifrequency eddy current sensor completely contains the soft zone area at least in longitudinal extension to the direction of movement.

6. (Currently Amended) The method according to claim 4 ~~or 5~~, wherein: ~~wherein~~ the defined position is determined solely by evaluation of the amplitude locus curve.

7. (Currently Amended) The method according to ~~one of the claims 1 to 6~~ claim 1, wherein:

~~wherein~~ a multifrequency eddy current sensor operatable with four different testing frequencies is used as the ~~multifreqeuncy~~ multifrequency eddy current sensor.

8. (New) (Currently Amended) The method according to claim 1, wherein:

the workpieces are planet wheel bolts which have a cylindrical geometry and two soft areas lying on the front ends thereof separated by a hardened middle area, with the middle area having a greater axial extension than the soft zone areas, which each usually have an axial extension, with a soft zone width, of 1.5 mm to 2.5 mm.

9. (New) The method according to claim 2 wherein:

the multifrequency eddy current sensor is operated in such a manner that during measuring of a workpiece, which moves continuously relative to the multifrequency sensor with a constant velocity, a multiplicity of measuring signals is generated and plotted as an amplitude locus curve; and

from at least one part of the amplitude locus curve a measuring constellation is selected in which the workpiece has a defined position to the multifrequency eddy current sensor, in which position a measuring signal is recorded which is used to determine the width of the soft zone.

10. (New) The method according to claim 3 wherein:

the multifrequency eddy current sensor is operated in such a manner that during measuring of a workpiece, which moves continuously relative to the multifrequency sensor with a constant velocity, a multiplicity of measuring signals is generated and plotted as an amplitude locus curve; and

from at least one part of the amplitude locus curve a measuring constellation is selected in which the workpiece has a defined position to the multifrequency eddy

current sensor, in which position a measuring signal is recorded which is used to determine the width of the soft zone.

11. (New) The method according to claim 9, wherein:

the defined position is selected in such a manner that the eddy current field of the multifrequency eddy current sensor completely contains the soft zone area at least in longitudinal extension to the direction of movement.

12. (New) The method according to claim 10, wherein:

the defined position is selected in such a manner that the eddy current field of the multifrequency eddy current sensor completely contains the soft zone area at least in longitudinal extension to the direction of movement.

13. (New) The method according to claim 11, wherein:

the defined position is determined solely by evaluation of the amplitude locus curve.

14. (New) The method according to claim 12, wherein:

the defined position is determined solely by evaluation of the amplitude locus curve.

15. (New) The method according to claim 2, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

16. (New) The method according to claim 3, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

17. (New) The method according to claim 4, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

18. (New) The method according to claim 5, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

19. (New) The method according to claim 6, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

20. (New) The method according to claim 8, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

21. (New) The method according to claim 9, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

22. (New) The method according to claim 10, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

23. (New) The method according to claim 11, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

24. (New) The method according to claim 12, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

25. (New) The method according to claim 13, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.

26. (New) The method according to claim 14, wherein:

a multifrequency eddy current sensor operatable with four different testing frequencies is used as the multifrequency eddy current sensor.